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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/601,157	06/20/2003	Jeremy Donaldson	10015085-6	6924

7590 10/03/2005  
HEWLETT-PACKARD COMPANY  
Intellectual Property Administration  
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Fort Collins, CO 80527-2400

EXAMINER

DO, AN H

ART UNIT	PAPER NUMBER
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2853

DATE MAILED: 10/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

HA

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/601,157		DONALDSON ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	An H. Do		2853	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 August 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 8 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 5 and 9-16 is/are allowed.
- 6) ☒ Claim(s) 1-4, 6, 7, 17 and 18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                         |                                                                             |
|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____                                                |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____                                                             | 6) <input type="checkbox"/> Other: _____                                    |

### **DETAILED ACTION**

The Amendment filed on 18 August 2005 has been acknowledged.

#### ***Election/Restrictions***

1. This application contains claim 8 drawn to an invention nonelected with traverse in Paper filed on 24 August 2004. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

#### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Kawamura et al (US 6,310,639).

Regarding claim 1, Kawamura et al disclose the following claimed features:

A structure (Figures 3-4B) comprising:

-a substrate (303, 307) having a thickness (Figure 3) defined by a first surface (bottom surface) and a generally opposing second surface (top surface of 307);

-a trench (327) having a long axis and received in the first surface (bottom surface) and extending through less than an entirety of the thickness of the substrate (Figure 4A); and,

-a plurality of slots (Figure 3, vias 321, 323) extending into the substrate (303, 307) from the second surface (top surface of 307) and connecting with the trench (327) to form a compound slot (the tapered trench slot) through the substrate (303, 307), wherein a cross-section of the trench taken transverse the long axis has a first width (wider opening portion beginning at bottom surface) that is proximate the first surface that is greater than a second width (narrower opening portion towards top surface of 307) that is more distal to the first surface (Figures 4A, 4B) (column 6, line 63 to column 7, lines 1-6).

Regarding claim 2, wherein the substrate (303, 307) comprises silicon (column 6, line 13).

Regarding claim 3, wherein the substrate comprises a semiconductor substrate (Figure 3, element 303, 307, column 6, line 13) incorporated into a print cartridge (Figure 2).

Regarding claim 4, wherein the compound slot (the tapered trench slot) comprises a fluid-feed slot (column 6, lines 63-66).

4. Claims 1-4, 6, 7, 17 and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Buswell et al (US 6,666,546).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art

under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Buswell et al disclose in Figures 2, 3 and 5-5C the following claimed features:

Regarding claims 1 and 9, a structure (Figures 5-5C) comprising:

- a substrate (308b) having a thickness (Figure 5B, thickness t) defined by a first surface (310b) and a generally opposing second surface (312b);

- a trench (503-505) having a long axis and received in the first surface (310b) and extending through less than an entirety of the thickness (t) of the substrate (Figure 5B); and,

- a plurality of slots (Figure 5B, terminal regions 504b, 504c) extending into the substrate (308b) from the second surface (312b) and connecting with the trench (504) to form a compound slot (a bowl-shaped type as shown in Figures 5B, 5C) through the substrate (308b), wherein a cross-section of the trench taken transverse the long axis has a first width (a bowl-shaped portion towards surface 310b) that is proximate the first surface that is greater than a second width (rectangular-shaped portion towards surface 312b) that is more distal to the first surface (Figures 5B, 5C).

Regarding claim 2, wherein the substrate (308b) comprises silicon (column 3, lines 10-14).

Regarding claim 3, wherein the substrate comprises a semiconductor substrate (column 1, lines 66-67) incorporated into a print cartridge (Figure 2).

Regarding claim 4, wherein the compound slot (a bowl-shaped type as shown in Figures 5B, 5C) comprises a fluid-feed slot (ink feed slots 503, 504, 505).

Regarding claim 6, wherein the first width comprises a minimum width (504a) of the compound slot.

Regarding claim 7, wherein a maximum width (504b, 504c) of the compound slot is at the second surface (310b) (Figures 5B, 5C).

Regarding claim 17, wherein the first the first dimension is about 30 microns to about 300 microns (column 6, lines 13-23).

Regarding claim 18, wherein the first width is about 200 microns (column 6, lines 13-23).

### ***Response to Arguments***

5. Applicant's arguments filed 18 August 2005 have been fully considered but they are not persuasive. Applicant argued that Kawamura failed to teach "a trench having a long axis and received in the first surface and extending through less than an entirety of the thickness of the substrate" and "a plurality of slots extending into the substrate from the second surface and connecting with the trench to form a compound slot through the substrate," as recited in claim 1. This argument is not found persuasive for the reason that Figures 3-4B of Kawamura clearly shows a trench (327) having a long axis and received in the first surface (bottom surface) and extending through less than an entirety of the thickness of the substrate (see Figure 4A); and a plurality of slots (see Figure 3, vias 321, 323) extending into the substrate (303, 307) from the second surface (top surface of 307) and connecting with the trench (327) to form a compound slot (the

tapered trench slot) through the substrate (303, 307). Applicant further argued that Buswell did not teach the feature of "wherein a cross-section of the trench taken transverse the long axis has a first width that is proximate the first surface that is greater than a second width that is more distal to the first surface" as recited in claim 1. Again, this argument is not found persuasive because Figures 5B and 5C of Buswell show that a bowl-shaped portion towards surface 310b (a first width) that is proximate the first surface is greater than a rectangular-shaped portion towards surface 312b (a second width) that is more distal to the first surface.

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

***Allowable Subject Matter***

7. Claims 5 and 9-16 are allowed over the prior arts as discussed in Applicant's Remarks filed on 18 August 2005.

The following is an examiner's statement of reasons for allowance:

The primary reason for the allowance of claims 5 and 9-16 is the inclusion of the limitation of a structure that includes a plurality of slots extending into the substrate from the second surface and connecting with the trench to form a compound slot wherein the plurality of slots are separated from each other via substrate material extending from the second surface. It is this limitation found in the claims, as it is claimed in the combination of, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Contact Information***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to An H. Do whose telephone number is 571-272-2143. The examiner can normally be reached on Monday-Friday (Flexible).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on 571-272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



AD  
September 26, 2005



Stephen D. Meier  
Primary Examiner